Australian Bureau of Statistics

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ANNUAL SEASONAL RE-ANALYSIS

INTRODUCTION

The Annual Seasonal Re-analysis (ASR) of the Labour Force series was conducted on estimates up to February 2019. No changes have been made to Labour Force series as a result of this review.

While combined seasonal factors for the complete time series are estimated each month, the parameters and prior corrections are reviewed annually at a more detailed level than is possible in the monthly processing cycle. The ASR takes into account each additional year's original data and assesses the appropriateness of seasonal adjustment parameters and prior corrections.

The ASR did highlight that there may be further improvements in the estimation of trend series. Early analysis suggest that indirectly trending rates may result in a smoother trend series, compared with the directly trended series. The ABS will investigate this recommendation further and will provide a summary of the results in coming months.

WHAT IS SEASONAL ADJUSTMENT?

Labour Force data are collected monthly (or quarterly for some topics) using the same methods, which results in original (that is, unadjusted) monthly or quarterly time series. Seasonal adjustment is applied to some of the original series to remove influences that are:

- systematic and calendar related, for example school leavers joining the labour force every February; and/or
- systematic and related to holidays which move around between months but which still occur every year, for example Easter.

Systematic and calendar related influences which have the same timing, same direction and similar magnitude every year, are removed to create the seasonally adjusted series. The presence and size of influences due to moving holidays, the variable timing of the commencement of interviews in January and the timing of supplementary surveys are estimated using a regression-ARIMA framework and also removed. The regression-ARIMA framework enables these influences to be accurately estimated. Without accurate estimation of these effects, the seasonal pattern may be obscured, and the seasonal factors may be less accurate.

The seasonally adjusted series irregular component is removed to create the trend series. Seasonally adjusted and trend series are revised each month to take account of the latest original estimates.

The ABS aims to produce high quality seasonally adjusted estimates that are without systematic

related variation.

Seasonally adjusted aggregate hours worked estimates include more extensive corrections for the influence of public holiday and school holiday effects. Each moving holiday is estimated and removed in the aggregate state/territory estimates. State/territory level influences are used to estimate the school and public holiday effects in the Australia and full-time/part-time by sex estimates.

During each ASR, the framework for estimating moving holidays and variable timing of the commencement of interviews in January is assessed for appropriateness. This ensures that the impact of these influences are being appropriately estimated from year to year, that assumptions used in the regression-ARIMA framework continue to be valid, and to implement improvements in estimation methodology.

IMPACT ON THE LABOUR FORCE DATA

To account for the changes made to the supplementary survey program from 2014, the seasonal adjustment parameters and prior corrections have been monitored and revised regularly on an ongoing basis. No changes have been made to Labour Force series as a result of this review.

The 2019 ASR highlights that there may be further improvements in the estimation of trend series. Early analysis into the indirect trending of rates (such as the unemployment rate) found smoother estimates over the time series compared with the directly trended series. The ABS is yet to explore how indirectly trending rates operates at the current end including monitoring variance in revisions. The ABS will investigate this recommendation further and will provide a summary of the results in coming months.

ONGOING REVIEW OF METHODOLOGY

As part of a process of continuous improvement, the ABS will continue to explore options for further improving the quality of Labour Force time series. Should any optimisation's be found, the ABS will provide updates within the *Labour Force, Australia* (cat. no. 6202.0) publication, ahead of any changes being implemented - including the 2020 ASR.

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